

ABSTRACT OF THE DISCLOSURE

There is provided a magneto-optic optical device, such as a variable optical attenuator, an optical modulator or an optical switch, which is small, has a low power consumption, and has a high speed. A magnetic field in the same direction as the traveling direction of a light beam is applied vertically to a light entrance/exit plane of a Faraday rotator by a permanent magnet, and a light transmission region is completely contained in, for example, a region of a magnetic domain A, and emits a light beam without attenuation. When power is applied to an electromagnet to cause a region of the magnetic domain A and a region of a magnetic domain B to substantially equally exist in the light transmission region, a Faraday rotation angle θ_f becomes 0° . When a further large current is made to flow to the electromagnet, the light transmission region is completely contained in the region of the magnetic domain B. The Faraday rotation angle at the time when the light transmission region is in the region of the magnetic domain B becomes $-\theta_{fs}$. As the Faraday rotation angle is changed from 0° to $-\theta_{fs}$, the intensity of light absorbed by a second polarizer is increased, and excellent attenuation is realized.